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IN THE CLAIMS

1-3. (canceled)

4. (currently amended) A data transmission system comprising:

a first plurality of Gigabit Ethernet input/output ports, each port being adapted to be coupled to a first Gigabit Ethernet link carrying data packets;

a multiplexer interface coupled to said first input/output ports, said multiplexer interface being adapted to receive said data packets;

a multiplexer coupled to said multiplexer interface, said multiplexer being adapted to receive said data packets from said multiplexer interface and to multiplex said data packets;

a transmitter coupled to said multiplexer; and

an optical link coupled to said transmitter, said transmitter being adapted to transmit the multiplexed data packets over said optical link to a receiver;

wherein said multiplexer interface comprises a first optical transceiver adapted to detect a first loss of signal in at least one of said first Gigabit Ethernet links; to generate a signal loss code insert in response to detection of said first loss of signal; and to apply said signal loss code insert to said multiplexer in place of said data packets from said at least one of said first Gigabit Ethernet links having said first loss of signal;

said receiver, which is coupled to said optical link and is adapted to receive said multiplexed data packets from said optical link;

a demultiplexer coupled to said receiver, said demultiplexer being adapted to demultiplex the received multiplexed data packets; and

a demultiplexer interface coupled to said demultiplexer, said demultiplexer interface being adapted to receive the demultiplexed data packets.

wherein said demultiplexer interface comprises a plurality of second optical transceivers that are each adapted to be coupled to a plurality of second Gigabit Ethernet links;

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26 and wherein said demultiplexer interface is adapted to prevent at least one of said
27 second optical transceivers from transmitting light in response to receipt of said signal
28 loss code insert within the demultiplexed data packets;

29 ~~The system of claim 2,~~ wherein each of said second optical transceivers comprises a
30 physical layer chip,
31 adapted to detect a third loss of signal in one of said second
32 Gigabit Ethernet links and go into an auto-negotiation stage.

1 5 - 9. (canceled)

1 10. (Previously presented) A method of communicating the existence of
2 faults in a data transmission system, said method comprising:
3 receiving a plurality of data packets carried on a plurality of first Gigabit Ethernet
4 links at a first plurality of Gigabit Ethernet input/output ports;
5 multiplexing said data packets;
6 transmitting the multiplexed data packets to a receiver along at least a portion of
7 an optical link;
8 detecting a first loss of signal in at least one of said first Gigabit Ethernet links
9 and generating a signal loss code insert in response to detecting said first loss of signal;
10 and

11 transmitting said signal loss code insert to said receiver in place of said data packets
12 from said at least one of said first Gigabit Ethernet links having said first loss of signal;

13 ~~The method of claim 7,~~ wherein each of said second optical transceivers comprises a
14 physical layer chip,
15 said method further comprising said physical layer chip
16 detecting a third loss of signal in one of said second
17 Gigabit Ethernet links; and
18 entering into an auto-negotiation stage.

1 11-26. (canceled)